

CLAIMS

We claim:

1. An IP network over a partially meshed frame relay network, comprising:

5 a partially meshed frame relay network which includes:

a hub associated with a DLCI;

a plurality of spokes;

a plurality of permanent virtual circuits that link the spokes to the hub; and

10 an IP subnet that has an IP subnet address, and that includes the hub, a hub IP address associated with the hub, the spokes, and spoke IP addresses associated with the spokes;

wherein each of the spokes has an inverse ARP table in which the DLCI is mapped with the hub IP address, which inverse ARP table further includes at least one default entry that identifies the subnet address, so that a frame that has any of the spoke IP addresses may be routed to the hub by scanning the inverse ARP table.

2. The network of claim 1, wherein the default entry is the subnet IP address.

3. The network of claim 1, further comprising means for forwarding a frame received from a first spoke of the subnet to a layer-2 destination on a second spoke of the subnet without passing the frame to an IP layer of the subnet.

4. The network of claim 1, further comprising means for broadcasting a broadcast frame received from a first spoke of the subnet to all spokes of the subnet at layer-2 without passing the broadcast frame to an IP layer of the subnet.

5. An IP network over a partially meshed frame relay network, comprising:

a partially meshed frame relay network which includes:

a single hub associated with a DLCI;

a plurality of spokes;

a plurality of permanent virtual circuits that link the spokes to the single hub; and

a single IP subnet that has an IP subnet address, and that includes the single hub, a hub IP address associated with the single hub, the spokes, and spoke IP addresses associated with the spokes;

wherein each of the spokes has an inverse ARP table in which the DLCI is mapped with the hub IP address, which inverse ARP table further includes at least one default entry that

identifies the subnet address, which default entry is IP address 0.0.0.0, so that a frame that has any of the spoke IP addresses may be routed to the hub by scanning the inverse ARP table.

5 6. A method for forwarding a frame from a source spoke that has a source IP address to a destination spoke that has a destination IP address in IP network over a partially meshed frame relay network, comprising the acts of:

checking an inverse ARP table of the source spoke for a DLCI that corresponds to the destination IP address;

when the DLCI is found in the inverse ARP table of the source spoke, routing the frame to the destination spoke using the DLCI;

15 when the DLCI is not found in the inverse ARP table of the source spoke, scanning the inverse ARP table to find a default DLCI associated with the IP destination address and routing the frame using the default DLCI.